MULTIMEDIA UNIVERSITY

FINAL EXAMINATION

TRIMESTER 2, 2016/2017

BCE2034 – PROJECT CYCLE AND EVALUATION
(All sections / Groups)

6 MARCH 2017
2.30 p.m. – 4.30 p.m.
(2 Hours)

INSTRUCTIONS TO STUDENTS

1. This question paper consists of **TWO (2)** sections in **FIVE (5)** printed pages:
   Section A: Ten (10) True or False Questions
   Section B: Two (2) Structured Questions

2. Answer **ALL** questions in the answer booklet provided.

3. Marks are shown at the end of each question.

SECTION A: TEN (10) TRUE OR FALSE QUESTIONS (30 MARKS)

State whether each of the following statements is TRUE or FALSE, and explain why.

(1)   There are four phases in a project lifecycle, namely initiating, preparing, executing, and closing.

(2)   Mass Rapid Transit (MRT) is an example of a mega project.

(3)   A request for proposal and a proposal are the same documents.

(4)   Cost-reimbursement contract is suitable for projects with high risks, whereas fixed-price contract is suitable for projects with low risks.

(5)   Delphi method is one of the quantitative methods in demand forecasting.

(6)   The leading indicator method can be used to examine the lead-lag relationship between two relevant variables.

(7)   The choice of location can be influenced by input constraint.

(8)   Term loan provided by financial institutions is one of the means of finance.

(9)   Market risk premium is the difference between the expected stock return and the risk-free rate.

(10)   Plan risk response is a set of actions to prevent or reduce the likelihood of occurrence or the impact of a risk, and implement if risk event occurs.

[Total marks: 30 marks]

SECTION B: TWO (2) STRUCTURED QUESTIONS (70 MARKS)

Question 1

Read the following passage:

Petronas RAPID Project, Southern Johor, Malaysia

Malaysian oil and gas company Petroliam Nasional Berhad (Petronas) is developing a refinery and petrochemical integrated development project (RAPID) and other associated facilities in Pengerang, Southern Johor, Malaysia, through a project called Pengerang Integrated Complex (PIC).

Launched in May 2012, PIC is part of the larger Pengerang Integrated Petroleum Complex (PIPC) proposed by the Johor state government. Total investment for the PIPC project is approximately MYR97bn ($27bn), of which the RAPID project costs MYR57bn ($16bn) and the associated facilities require MYR40bn ($11bn).

A feasibility study along with site topographical survey and soil investigation work for the project were completed in October 2011. Front-end engineering design (FEED) and an environmental impact assessment studies have also been completed.
In April 2014, the Petronas board of directors approved the final investment decision (FID) for the RAPID project. The refinery project is anticipated to be completed by early 2019. It is expected to employ 70,000 workers during construction and generate 4,000 new jobs upon completion.

Southern Johor was chosen as the location for the project due to its proximity to deepwater port facilities and regional demand centres. The location enables easy transport of finished products to the market. The complex will cover an area of 2,000ha, and include a crude oil refinery and petrochemical complex capable of processing 300,000 barrels per day (bpd). These two projects will collectively produce 7.7 million tonnes per annum (Mtpa) of differentiated and speciality chemicals such as synthetic rubbers and high-grade polymers.

The RAPID project refinery will produce gasoline and diesel that will meet Euro 4 and Euro 5 fuel specifications. It will also supply feedstock for the petrochemical complex, which will create highly specialised chemicals. The refinery will use modern technologies to develop these products and follow stringent environmental regulations.

The project will help Petronas to produce premium petroleum products and speciality chemicals. Demand for such high-value products is increasing, especially in the Asia Pacific region. The RAPID project will enable Petronas to meet this demand for the next 20 years.

Development of the project is also in line with Malaysia's aim to establish new areas of growth, aimed towards improving people's quality of life. The petrochemical industry has been identified as the main sector for achieving this growth.

The RAPID project is expected to help transform Southern Johor into a new petrochemical hub. Several employment opportunities are also expected to be created in the region by suppliers and related industries.

Petronas already operates petrochemical complexes in Melaka, Kertih and Gebeng. The RAPID project is expected to spur economic growth in the region, as well as attract domestic and foreign direct investments into the country.

Source: http://www.hydrocarbons-technology.com/projects/petronas-rapid-project-malaysia/.

Based on the passage above, evaluate the Petronas RAPID project by providing any **THREE (3)** points that are logic and relevant to:

(a)　　Market analysis　　　　　　　　　　　　　　　　　　　　　　　　　　(9 marks)

(b)　　Technical analysis　　　　　　　　　　　　　　　　　　　　　　　　(9 marks)

(c)　　Environmental impact analysis　　　　　　　　　　　　　　　　　　(9 marks)

(d)　　Social impact analysis　　　　　　　　　　　　　　　　　　　　　　(9 marks)

(e)　　Risk analysis　　　　　　　　　　　　　　　　　　　　　　　　　　(9 marks)
　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　[Total marks: 45 marks]

Question 2

(a)　　Bobo is planning to run her own business instead of working in a company after graduating with her Bachelor degree. Assume the estimated cost and revenue is known and is presented in **Table 1**. As her business consultant, you are required to consult her on whether the business is worth pursuing using the following investment criteria (assume the discount rate is 10%):

Table 1	
Period	**Estimated Cost/ Revenue (RM)**
0	(100,000)
1	30,000
2	45,000
3	50,000
4	55,000

(i)　　Net present value (NPV)　　　　　　　　　　　　　　　　　　(4 marks)

(ii)　　Profitability index (PI)　　　　　　　　　　　　　　　　　　(4 marks)

(iii)　　Based on the answer from part (i) and (ii), what is your recommendation?
　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　　(2 marks)
　　　　　　　　　　　　　　　　　　　　　　　　　　　　　Continued...

(b)   Given the information for the return for Shell (an oil and gas company) and the return for the oil and gas's market portfolio in **Table 2**:

Table 2

Period	Return for Shell (%)	Return for oil and gas's market portfolio (%)
1	8	10
2	5	13
3	6	8
4	-1	2
5	4	7

Calculate the beta for Shell using the Capital Asset Pricing Model (CAPM) model and interpret it. Show all your calculations.   (6 marks)

(c)   The Notekins company is currently selling three types of music instruments in their music store, that is (A) piano, (B) drum, and (C) violin. However, the company is considering cutting the supply of one of the music instruments due to high cost of operating the music store. They have three options, either cut (A) piano, or (B) drum, or (C) violin.

Table 3

Options	Low demand (0.3)	Medium demand (0.5)	High demand (0.2)
A	6,000	6,500	7,000
B	3,000	4,000	5,000
C	8,000	8,500	9,000

Given the payoffs (in terms of RM) and its corresponding probabilities of low, medium and high demand in **Table 3**, recommend a rational decision to the Notekins company using decision tree analysis.   (9 marks)

[Total marks: 25 marks]

End of Questions

Formula Sheet

$$R_{it} = \alpha_i + \beta_i R_{Mt} + e_{it}$$

$$\beta_i = \frac{Cov(R_i, R_M)}{\sigma_M}$$

$$Cov(R_i, R_M) = \frac{\sum (R_i - \overline{R}_i)(R_M - \overline{R}_M)}{n-1}$$

$$\sigma_M^2 = \frac{\sum (R_M - \overline{R}_M)^2}{n-1}$$

$$\sigma_M = \sqrt{\sigma_M^2}$$

$$PV_n = \sum_{t=1}^{n} \frac{A_t}{(1+r)^t}$$

$$Benefit - Cost\ ratio: BCR = \frac{PVB}{I}$$

$$Net\ benefit - cost\ ratio: NBCR = \frac{PVB - I}{I}$$

$$= BCR - 1$$

End of Paper